

*E*valuation



*R*eport

PROGRAM MANAGEMENT PRACTICES FOR THE
INSTALLATION RESTORATION PROGRAM AT THE
MASSACHUSETTS MILITARY RESERVATION

Report No. 99-020

October 23, 1998

Office of the Inspector General
Department of Defense

Additional Copies

To obtain additional copies of this evaluation report, contact the Secondary Reports Distribution Unit of the Analysis, Planning, and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or FAX (703) 604-8932 or visit the Inspector General, DoD Home Page at www.dodig.osd.mil.

Suggestions for Future Evaluations

To suggest ideas for or to request future evaluations, contact the Planning and Coordination Branch of the Analysis, Planning, and Technical Support Directorate at (703) 604-8908 (DSN 664-8908) or FAX (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: APTS Evaluation Suggestions)
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, Virginia 22202-2884

Defense Hotline

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@dodig.osd.mil; or by writing the Defense Hotline, The Pentagon, Washington, D C. 20301-1900. The identity of each writer and caller is fully protected

Acronyms

AFCEE	Air Force Center for Environmental Excellence
ATSDR	Agency for Toxic Substances and Disease Registry
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	Environmental Protection Agency
FFA	Federal Facilities Agreement
IROD	Record of Decision for Interim Action
IRP	Installation Restoration Program
MMR	Massachusetts Military Reservation
MOU	Memorandum of Understanding
TRET	Technical Review and Evaluation Team



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

October 23, 1998

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE (FINANCIAL
MANAGEMENT AND COMPTROLLER)

SUBJECT: Evaluation Report on the Program Management Practices for the Installation
Restoration Program at the Massachusetts Military Reservation
(Report No. 99-020)

We are providing this report for information and use. We conducted the evaluation in response to a request from the Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations & Environment). We considered management comments on a draft of this report in preparing the final report.

The Department of the Air Force comments on the draft of this report conformed to the requirements of DoD Directive 7650.3 and left no unresolved issues. Therefore, no additional comments are required. As a result of management comments, we revised draft Finding B to clarify our intention.

We appreciate the courtesies extended to the evaluation staff. Questions on the evaluation should be directed to Mr. William C. Gallagher at (703) 604-9270 (DSN 664-9270) or Mr. Michael Perkins at (703) 604-9152 (DSN 664-9152). See Appendix B for the report distribution. The evaluation team members are listed inside the back cover.

A handwritten signature in black ink, reading "Robert J. Lieberman", is positioned above the printed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-020

(Project No. 7CB-5028.01)

October 23, 1998

Program Management Practices for the Installation Restoration Program at the Massachusetts Military Reservation

Executive Summary

Introduction. This evaluation was initiated in response to a request from the Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations & Environment) to review the Installation Restoration Program at the Massachusetts Military Reservation. The Installation Restoration Program at the Massachusetts Military Reservation is one of the largest cleanup efforts currently underway within DoD. DoD has spent over \$200 million to date for cleanup at the Massachusetts Military Reservation and the total cost estimate of the entire cleanup could exceed \$800 million. This is the second of two reports evaluating the environmental cleanup program at the Massachusetts Military Reservation.

Evaluation Objectives. The overall evaluation objective was to determine the validity of contractual, technical, and managerial processes associated with cleanup actions at the Massachusetts Military Reservation. The first report discussed our evaluation of the contractual process. This report discusses our evaluation of the technical and managerial processes associated with the cleanup actions. We also evaluated the adequacy of the management control program as it applied to the management and technical processes.

Evaluation Results. Although the Air Force Center for Environmental Excellence has established and implemented an aggressive cleanup program at the Massachusetts Military Reservation, the following concerns still exist.

- Officials did not base remedial actions on confirmed risks to human health and the environment (Finding A).
- The Federal Government's communication with the Upper Cape Cod community had not been effective over the course of the project. While improved in recent years, further effort is needed (Finding B).

As a result, the Massachusetts Military Reservation Installation Restoration Program may be spending funds for treating groundwater plumes that pose little or no risk to human health or the environment. In addition, the public may overstate the actual health risk posed by the groundwater contamination. See Part I for a discussion of the evaluation results and Appendix A for details on the management control program.

Summary of Recommendations. We recommend that the Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health) execute a comprehensive assessment of the Massachusetts Military Reservation Installation

Restoration Program by an independent technical team; schedule the Massachusetts Military Reservation Installation Restoration Program for periodic oversight and technical reviews to measure goal achievement and selection process effectiveness; and develop and implement an effective and comprehensive strategy to provide consistent, credible, and timely health risk information to the Upper Cape Cod community.

Management Comments. The Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health) partially concurred with our findings and fully agreed with our recommendations. He commented that the original intent of the Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations, and Environment) request was to review program management dating back to 1982. The Deputy Assistant Secretary believes that many of the deficiencies identified were a result of management practices and decisions made before inheriting the project in 1996. The Deputy Assistant Secretary agreed that a nationally based independent technical team should evaluate the program, but indicated that such a review would have marginal value in affecting the remedies selected. He also agreed to pursue a remedy for each underground pollution plume in the Interim Record of Decision and to schedule periodic oversight of the program. The Deputy Assistant Secretary disagreed with our finding that the Federal Government had not been effectively communicating with the Upper Cape Cod community. He stated that the Air Force had made tremendous strides to improve risk communication. Also, he stated that the Air Force Center for Environmental Excellence and the Joint Program Office intend to continue a robust and proactive risk communication program. The Air Force will continue to evaluate the need for additional management and resource requirements for that effort. See Part I for a discussion of management comments and Part III for the complete text of management comments.

Evaluation Response. The Air Force comments were generally responsive. We determined that an in-depth review of program management dating back to 1982 would not help resolve current problems in a timely manner. Therefore our main focus was to evaluate the current technical and managerial processes associated with cleanup actions, although we did review numerous historical studies, decision documents, and contracts. We have remained in close contact with various officials through June 1998 to review documents and new initiatives. We will track the results of the independent technical review through our audit follow-up process.

We agree that the Air Force and the Joint Program Office have worked to improve risk communication with the Upper Cape Cod community. This effort should continue. We modified Finding B to more clearly acknowledge the ongoing effort; however, the fact that communication was deficient in the past is irrefutable and further improvement is needed.

Table of Contents

Executive Summary	i
Part I - Evaluation Results	
Evaluation Background	2
Evaluation Objectives	4
Optimize Risk Reduction	5
Health Risk Communication	13
Part II - Additional Information	
Appendix A. Evaluation Process	
Scope	22
Methodology	23
Management Control Program	24
Summary of Prior Coverage	24
Appendix B. Report Distribution	25
Part III - Management Comments	
Department of the Air Force Comments	29

Part I - Evaluation Results

Evaluation Background

The Commonwealth of Massachusetts established the Massachusetts Military Reservation (MMR) in 1935 as a National Guard training camp. The training camp was federalized in 1940 and military activities increased through 1970 generating large amounts of hazardous waste. Hazardous waste was commonly disposed of by landfilling, dumping in storm drains or on the ground, or burning in fire training areas. The MMR covers 34 square miles and is home to Otis Air National Guard Base, Camp Edwards Army National Guard Base and the Coast Guard Air Station, Cape Cod. Four contiguous upper Cape Cod towns draw drinking water from the groundwater aquifer on the MMR.

In 1978, officials in one of the neighboring towns discovered detergents in a municipal drinking water well. The Massachusetts Department of Environmental Protection traced the detergents back to the MMR wastewater treatment plant. Federal, DoD, and State officials detected contaminants in monitoring wells in 1983 and 1984, and more than 200 residential wells by 1985. Federal, DoD, and State officials use monitoring wells to collect data on water levels and water quality.

The Environmental Protection Agency (EPA) designated the Cape Cod Aquifer underlying MMR as a sole-source aquifer under the Safe Drinking Water Act. Contaminated groundwater affected drinking water and irrigation wells, and several ponds in neighboring towns. An estimated population of 36,000 people live within 3 miles of the MMR. In the past 10 years, the Air Force has connected several hundred homes to municipal water supplies.

For several years, Federal and State regulators, community organizations, and activists have pressured the military to speed up the MMR cleanup process. In 1997, the Cape Cod Times newspaper published a six-part series severely critical of the MMR IRP entitled *"Broken Trust, the failed cleanup at the Massachusetts Military Reservation."* This series stimulated participation from several community activist organizations and the public voicing criticism toward the cleanup program.

Installation Restoration Program. The purpose of the Installation Restoration Program (IRP) is to identify, evaluate, and remediate any former disposal or spill site that may contain hazardous substances. In 1982, DoD initiated the IRP at the Otis Air National Guard Base portion of MMR to investigate and cleanup environmental problems. DoD expanded the IRP to include Camp Edwards and the Coast Guard sites in 1986. Preliminary assessments and remedial investigations identified 78 potential pollution source study areas and 11 major groundwater pollution plumes. Groundwater pollution plumes occur when contaminants mix and flow with groundwater. Groundwater pollution

plumes have contaminated both residential and public wells near MMR. DoD has spent over \$200 million for cleanup at MMR. The total cost estimate of the entire MMR cleanup could exceed \$800 million.

Community Involvement. In 1986, the IRP at MMR formed the Technical Environmental Affairs Committee (a group of citizens, Federal and State regulators, and DoD staff who met regularly to discuss MMR cleanup issues). In 1993, the Technical Environmental Affairs Committee established the Senior Management Board (the Board) that became the mechanism for principal community involvement to MMR IRP. The Board includes senior level officials from the community, DoD staff, and representatives from the regulatory agencies. The Board meets monthly to review cleanup progress, consider proposed technical alternative actions, and other issues of concern to the IRP. After political and public concern increased over the long remedial action process, the Board established process action teams (Plume Management, Long-Range Water Supply, and Innovative Technologies) to examine the cleanup program.

Federal Facilities Agreement (FFA). In 1989, the EPA became the lead regulatory agency for cleanup actions by adding MMR to the National Priorities List (Superfund). This designation means that the groundwater contamination is a serious threat to the public and the environment, and cleanup requires EPA oversight. Superfund designees are subject to special provisions for Federal facilities under the Comprehensive Environmental Restoration, Compensation, and Liability Act (CERCLA). The FFA, dated July 17, 1991, and amended April 24, 1997, is an agreement between the EPA, DoD (Air Force and the National Guard Bureau), and the Coast Guard. As specified in the FFA, DoD must consult with the EPA at the completion of each National Contingency Plan step.

Program Management. The Air Force Engineering Services Center, Tyndall Air Force Base, Florida, managed the IRP for all Air Force environmental projects from 1982 to 1985. Program management transferred to Headquarters, Air National Guard, Andrews Air Force Base, Maryland, in 1986. The Air National Guard opened an IRP office at Otis Air National Guard Base in 1990 to manage MMR cleanup projects. In May 1996, the Air Force Center for Environmental Excellence (AFCEE) became program manager and performs on-site management for execution of remedial cleanup projects. Senior environmental leaders from the Army, Air Force, National Guard Bureau, the Adjutant General of Massachusetts, and the Deputy Under Secretary of Defense for Environmental Security established a Joint Program Office in May 1997 to oversee all environmental management efforts at MMR. The Joint Program Office mission is to integrate and coordinate MMR environmental management of cleanup efforts, streamline the information flow, and facilitate environmental decision making.

Strategic Plan. Among other provisions, the FFA mandated a Comprehensive Plan. The Comprehensive Plan provides strategies and schedules of enforceable milestones for all environmental restoration and related compliance efforts. In July 1996, AFCEE developed the Strategic Plan encompassing all technical requirements and milestones contained in the Comprehensive Plan. The

Strategic Plan describes the IRP mission and the roles of key DoD agencies. In 1997, AFCEE revised the Strategic Plan and incorporated an extensive Community Involvement Plan for MMR.

Public Health Activities. The DoD provides funds through the United States Public Health Service to the Agency for Toxic Substances and Disease Registry (ATSDR) for community health risk education. The Defense instruction for the Environmental Restoration Program designates the Army as the lead agency to carry out DoD responsibilities under the memorandum of understanding with ATSDR.

Evaluation Objectives

Our overall objective was to determine the validity of the contractual, technical, and managerial processes associated with cleanup actions. For this report, we discuss our evaluation of the technical and managerial processes. The first report "Evaluation of Contracting Practices for the Installation Restoration Program at Massachusetts Military Reservation" Report No. 98-152, June 15, 1998, discussed the contractual process. Also, we evaluated the adequacy of the management control program as it applied to the technical and managerial processes. See Appendix A for a discussion of the evaluation process and the review of the management control program.

Finding A. Optimize Risk Reduction

Although AFCEE has established and implemented an aggressive cleanup program at MMR, AFCEE officials did not base remedial actions selected for implementation on confirmed risks to human health or the environment. Reasons for the lack of an effective risk assessment framework include extensive pressure by regulators and the public to conduct remedial actions in a short time frame. In addition, an independent technical group has not evaluated the MMR cleanup program. Without an effective risk assessment framework, AFCEE uses arbitrary criteria to establish the need for remedial actions and to set cleanup goals. MMR IRP may be spending funds for treating groundwater plumes that pose little or no risk to human health or the environment.

Environmental Restoration Criteria

National Contingency Plan. The National Oil and Hazardous Substances Pollution Contingency Plan, Code of Federal Regulations, title 40, part 300, establishes methods and criteria for response actions. Public Law 96-510, “Comprehensive Environmental Restoration, Compensation, and Liability Act of 1980” (CERCLA) authorizes revisions of the National Contingency Plan to provide procedures and standards for remedial actions. Specifically, the National Contingency Plan outlines restoration procedures when there is a release of a hazardous substance into the environment that may present an imminent and substantial danger to the public health. Remedial alternatives should protect human health and the environment from unacceptable risks and reduce toxicity, mobility, or volume through treatment. The lead agency should eliminate alternatives if costs are grossly excessive compared to overall effectiveness of the remedial alternative.

Environmental Restoration by EPA. CERCLA and Public Law 99-499, “Superfund Amendments and Reauthorization Act of 1986,” give authority and oversight to the Environmental Protection Agency (EPA) for environmental restoration. The lead agency should select remedial actions that significantly reduce volume, toxicity, or mobility of hazardous substances; protect human health and the environment; and are cost effective. EPA evaluates Federal facilities using National Contingency Plan criteria and a hazard ranking system that determines eligibility for the National Priorities List.

Defense Environmental Restoration Program. DoD Instruction 4715.7, “Environmental Restoration Program,” April 22, 1996, provides guidance for IRP partnerships regarding restoration activities between DoD components, and Federal, State and local regulatory agencies. The restoration program goal is to reduce risks, in a cost effective manner, to human health and environment attributable to contamination resulting from past DoD activities at MMR.

Environmental Restoration Achieved

Air National Guard. From 1986 to April 1996, the Air National Guard identified and characterized ten contaminated groundwater plumes at MMR. In 1992, the EPA agreed to interim remedial action for one contaminated groundwater plume. The Air National Guard planned remedial actions in 1994 for six plumes scheduled for completion between FYs 1995 and 1998. All remedial actions in the 1994 Air National Guard plan specified containment, extraction and treatment of groundwater as the solution.

Study Areas. At the signing of the FFA in 1991, the IRP office at MMR identified 73 study sites as potential pollution sources. The IRP office combined 12 study sites and proposed 15 for "No Further Action." Also, officials proposed 3 study sites for deletion and identified 43 for further evaluation. An additional 4 sites and the underground Drainage Structure Removal Program totalled 78 study sites by 1997. Of the 78 study sites, nearly half required "No Further Action."

Community Involvement Plan. MMR response to the community involvement requirements has been exceptionally extensive. Sufficient information about plans for proposed remedial actions by a cleanup program should be available to the public. The public should have a reasonable opportunity to submit written or oral comments. In addition, DoD requires the formation of a Restoration Advisory Board, which shall include public representation. Contained within the Strategic Plan, the Community Involvement Plan describes the MMR response to CERCLA public involvement requirements.

The central public representation to MMR is through the Senior Management Board which reviews and comments on a very broad and detailed inventory of cleanup issues. Several process action teams, created by the Senior Management Board, deal with specific aspects of the cleanup program and include representatives from the community. The public participates on a number of other specialized advisory groups. All proposed cleanup remedial actions include a variety of alternatives available to the public for review and comment. MMR officials hold extensive public meetings to explain proposed alternatives and answer questions from the public. In addition, community groups receive technical support from independent private technical contractors paid for by MMR. This extensive public involvement goes far beyond the legal community involvement requirements contained in CERCLA.

AFCEE Accomplishments. From May 1996 to April 1997 AFCEE performed several remedial investigations and feasibility studies to determine remedial actions. Information inherited from the Air National Guard provided a starting point to AFCEE accomplishments. AFCEE met 25 enforceable milestones for MMR by April 1997 completing 14 milestones ahead of schedule. Four plumes received remedial action between May 1996 and April 1997. Officials installed

or selected containment systems for three plumes and conducted a performance evaluation for one plume containment, extraction and treatment system functioning since 1993.

AFCEE Strategy. AFCEE strategy focuses on cleaning up contamination from past DoD activities to ensure the elimination of threats to public health and the restoration of natural resources. MMR has the following objectives:

- remediate community groundwater resources,
- complete the MMR cleanup program,
- protect human health and the environment from the hazards of past practices,
- maintain and strengthen community involvement through full and open disclosure and achieve community-based solutions,
- develop partnerships with regulatory agencies, and
- earn and restore public trust and confidence in the DoD Environmental Cleanup Process.

MMR Cleanup Program

The cleanup strategy goal that MMR follows does not center on reducing the risk to human health and the environment as required in Federal, DoD and Air Force guidance. Rather, the Air Force environmental cleanup program goal, stated in the 1997 Strategic Plan, as pointed out by the Technical Review and Evaluation Team (TRET), is 100 percent containment of all plumes above maximum contaminant levels.

TRET is a multi-disciplinary group of scientists with disciplines such as hydrology, ecological and human risk, and comes from a variety of organizations including Federal and State agencies, academia and industry. MMR retained TRET to provide technical advice and analysis.

TRET subgroup leaders expressed criticism of the total containment strategy to the Senior Management Board many times in the past. They also offered a number of recommendations to the Senior Management Board on which the board has not acted. TRET eventually issued a memorandum describing their reservations about the MMR cleanup strategy. On September 12, 1997, five TRET subgroup leaders issued a memorandum to the Remedial Project Managers and Senior Management Board. This memorandum provided a comprehensive evaluation of the design and goals for remedial actions, and offered a number of recommendations that they felt MMR needed.

Optimize Risk Reduction

TRET Findings and Recommendations. The principal finding was that the program focused on plume containment rather than reduction of risk to human health and the environment, as required in CERCLA. TRET subgroup leaders also concluded that some parts of the contamination plumes pose little risk to public health or the environment. Therefore, pumping the entire plume instead of only those parts that represent documented risk would be unnecessary and wasteful. The TRET memorandum states the following conclusions:

To make remedial action decisions that are technically defensible the broad set of elements that contribute to these decisions must include an assessment of risk to human health and the environment. The need for remedial measures should be based primarily on the assessment that current or potentially future exposure will result in risk. It has not yet been made clear, for any MMR plumes that realistic exposure pathways based on current site information and land use projections present unacceptable risks to human health or the environment. Furthermore, the use of risk assessment and risk assessment methodology to support the need for remedial action and subsequent selection of remedial alternatives is not evident.

The TRET's preliminary analysis, based upon modeling results, suggests that reduction of contaminant concentrations to background (below Minimum Contamination Levels), would require ten flushes of the aquifer which would take hundreds of years to achieve. If sources are not removed these estimates could increase. These inordinately long time frames for what is an interim action constitute an implicit but clearly enunciated underpinning assumption of the cleanup strategy. We consider such an assumption to be unrealistic: engineering experience shows that complex engineered systems fail and that future outcomes deviate from predictions increasingly with time. It is possible that natural systems could be as effective over such long terms as any engineered system.

MMR IRP Reply to TRET Memorandum. In a memorandum dated January 6, 1998, the AFCEE MMR IRP Remedial Program Manager, expressed agreement with TRET that risk assessment and reduction have not played the part they should have in the remedial action decision selecting process:

The AFCEE agrees that risk has been under-emphasized in the actions dealing with the plumes. The focus for some time has been to assure that the remedial actions do not create unacceptable risks and that the actual risk presented by the plumes themselves has been given only light attention. The Decision Criteria Matrix . . . has brought risk reduction back into view and it has highlighted the fact that the plumes themselves actually present little or no unacceptable risk.

The Plume Response Decision Criteria Matrix and Schedule is a tool that outlines factors for evaluating potential cleanup alternatives. The matrix was developed cooperatively in 1997 by EPA, the Massachusetts Department of Environmental Protection, and AFCEE. The matrix makes it possible to compare remedial alternatives to each other. The remedial program manager initially applied the plume decision criteria matrix process to four plumes: Chemical Spill 10, Ashumet Valley, Landfill 1, and Storm Drain 5 South.

Record of Decision, Interim Action (IROD). The plume containment initiative is derived from the Record of Decision for Interim Action (IROD) signed on September 25, 1995, by MMR and Region 1 of the EPA. The IROD committed MMR to contain 7 of 10 known groundwater contamination plumes. These contamination plumes have either migrated beyond or are approaching the MMR installation boundary. The IROD based total containment on the assumption that these plumes, if not contained, “may pose an imminent and substantial endangerment to human health, welfare, or the environment.”

The containment action calls for extracting contaminated groundwater at the leading edge of each of the seven plumes. Prescribed action also calls for potentially extracting groundwater from the hot spot areas identified during remedial design, if feasible. The action further requires processing of extracted groundwater in a treatment facility, removing pollutants, and discharging treated water back to groundwater. In addition, the IROD states that even though this interim action will prevent further downgradient migration of the contaminated groundwater: “Contaminant concentrations in groundwater within the plumes, particularly near the source areas would not be significantly reduced.”

Pressure from Community and Regulators

MMR IRP managers and TRET subgroup leaders stated that heavy community pressure persuaded AFCEE to espouse the goal of “100 percent containment.” The community also exerted strong pressure on the regulators and MMR to clean captured plume groundwater to a “nondetect” standard. Community residents in the impact area expressed strong determination to hold MMR to this containment and cleanup standard. The minutes from Senior Management Board meetings contain many examples of the same viewpoint being offered by community residents in attendance. In addition, local press coverage has been very critical of the MMR cleanup program and has been a major source of public pressure.

TRET subgroup leaders repeated the conclusions they had offered in their memorandum in a later meeting with us. They said that IROD, written in a state of anxiety, was the result of heavy pressure from the community on remedial project managers. Remedial project managers include the MMR IRP remedial program manager and a representative from the Federal and State regulatory agencies. The community wanted remedial project managers to produce some tangible evidence of cleanup action such as actually pumping and

Optimize Risk Reduction

processing groundwater. TRET leaders also believed that the community exerted this pressure because they lacked sufficient information to determine the true health risks posed by groundwater contamination.

Independent Technical Peer Review

No independent technical group has evaluated the MMR IRP technical and management functions. Given the high uncertainties associated with environmental investigations and remediation, there are clear benefits from applying technical peer reviews to environmental projects. A technical peer review will provide independent technical expertise and ensure that DoD environmental restoration funds are used properly.

An independent technical review is especially important to MMR IRP. MMR IRP is one of the largest cleanup efforts in process within the Department of Defense. In January 1998, AFCEE estimated that the total cost of the entire MMR cleanup could exceed \$800 million. The MMR IRP has also generated extensive public interest and comment from the media and State and Federal elected officials.

The MMR IRP should receive an independent technical review by a qualified technical team. The team should include scientists from several fields such as hydrology, ecological and human health risk disciplines and be drawn from a variety of sectors such as government, academia, and private industry. Since interest in this high profile project is extensive, several team members should have significant professional stature. Team members associated with the National Academy of Sciences provide an unassailably expert and independent review. An independent technical review will:

- validate and enhance the credibility of the decision making process,
- validate the rationale used to review and select remedial actions,
- ensure the use of a risk-based approach as a remediation decision tool, as well as the incorporation of a properly conducted, site specific, risk assessment,
- promote a risk management approach to provide cost-benefit balance,
- evaluate the technical ability of the proposed remedial action to achieve stated remediation goals, and
- identify opportunities to use accelerated removal actions, presumptive remedies, and innovative technologies.

TRET has an integrated technical resource relationship with MMR management and technical decision making functions. As such, TRET cannot be totally independent of MMR or considered an independent technical group.

Evaluation Summary

AFCEE did not adequately quantify and confirm risk to human health and the environment when selecting rigorous and costly remedial actions for implementation at MMR. Inadequate risk assessment consideration may be resulting in the selection of a groundwater remediation goal--total containment of contaminant plumes--that is disproportionate to the apparently low health risk posed by MMR contaminants. Inappropriate remedial actions will in turn lead to unnecessary spending in quest of a potentially unachievable goal.

Environmental cleanup policy within DoD either requires or highly recommends the use of independent peer reviews. Independent peer reviews are a means of assuring that cleanup remedial action selections emphasize both maximum effectiveness and wise use of DoD cleanup funds. The MMR IRP has not received such an independent review. We believe that a comprehensive, technical assessment of the MMR IRP by an independent technical team would validate the TRET conclusions.

Recommendations, Management Comments, and Evaluation Response

A.1. We recommend that the Deputy Assistant Secretary of the Air Force (Environmental, Safety, and Occupational Health) direct an independent technical team to assess the Massachusetts Military Reservation Installation Restoration Program. This technical team should have special expertise in several disciplines, such as human health exposure assessment, ecological risk management, remediation technology, etc., and include members with national prominence such as the National Academy of Sciences. The team should review Massachusetts Military Reservation goals and strategies, and closely examine cleanup requirements and guidance.

a. Evaluate the adequacy of the rationale used to select remedial actions,

b. Incorporate a risk-based approach as a remediation tool, and

c. Validate the technical merits of the proposed remedial actions to achieve the stated remediation goals.

Management Comments. The Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health) concurred with our recommendation, stating that the Air Force Center for Environmental Excellence conducted an independent evaluation of the program using Air Force cleanup professionals. The Deputy Assistant Secretary stated that the nationally based independent technical team would have significant value but should include relations with community leaders, community members, and regulators.

Optimize Risk Reduction

Also, the Deputy Assistant Secretary stated that the nationally based independent technical team could not complete their review prior to September 30, 1999, and will have only marginal value in affecting selected remedies.

Evaluation Response. The Deputy Assistant Secretary's concurrence is responsive. Although we welcome the opportunity to review the technical team report of the Air Force Center for Environmental Excellence, we do not consider this review to be a satisfactory substitute for the nationally based independent technical review. We consider that the findings of the independent technical review will be a crucial element in the process by which MMR develops its records of decision and final cleanup remedies.

A.2. We recommend that the Deputy Assistant Secretary of the Air Force (Environmental, Safety, and Occupational Health) renegotiate the Record of Decision for Interim Action with the regulators based on the results of the independent technical team, if appropriate.

Management Comments: The Deputy Assistant Secretary concurred with our recommendation, acknowledging that an independent technical team review could be useful in revising the program milestones. The Deputy Assistant Secretary also described some recent MMR initiated plume treatment remedies based upon the risk to human health and the environment that depart from the interim record of decision concentration on total containment. He agreed to pursue a remedy for each plume in the Interim Record of Decision and to schedule periodic oversight of the program.

Evaluation Response. The Deputy Assistant Secretary's concurrence is fully responsive to the recommendation. The independent technical team review could greatly assist in the clarification and direction of a negotiation process for remedy selections. We will track the milestones of that review through our audit follow-up process.

A.3. We recommend that the Deputy Assistant Secretary of the Air Force (Environmental, Safety, and Occupational Health) schedule the Massachusetts Military Reservation Installation Restoration Program for periodic oversight and technical reviews to measure achievements and effectiveness.

Management Comments: The Deputy Assistant Secretary concurred with our recommendation and described five different methods that are planned to measure achievements and effectiveness.

Finding B. Health Risk Communication

The Federal Government did not effectively communicate with the Upper Cape Cod community during the course of the MMR cleanup project. In recent years, this condition existed because the Air Force, in coordination with the Agency for Toxic Substances and Disease Registry and the DoD lead agent, did not place sufficient emphasis on providing health risk information to the community. As a result, the public may have overstated or misunderstood the actual health risk posed by the groundwater contamination. Recent efforts to improve communications are commendable and should be continued.

Public Health Criteria

Comprehensive Environmental Response, Compensation and Liability Act. Public Law 96-510, "Comprehensive Environmental Restoration, Compensation, and Liability Act of 1980" (CERCLA) states that the Agency for Toxic Substances and Disease Registry (ATSDR) has primary responsibility for public health activities at National Priorities List sites. Public health activities include assessments, studies, community health education, and health professional education. According to the memorandum of understanding between ATSDR and DoD, Air Force personnel may assist in the preparation or conduct of health related activities for the MMR to include health education.

Defense Environmental Restoration Program. DoD Instruction 4715.7, "Environmental Restoration Program," April 22, 1996, designates the Secretary of the Army as the lead agency for ATSDR programs. The instruction provides for the establishment of a memorandum of understanding with ATSDR, in coordination with the DoD Components, to transfer funds in support of public health activities. Also, the instruction specifies that the Army will negotiate cooperative agreements with States and carry out DoD responsibilities under the MOU with ATSDR. The Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) delegated the Army Center for Health Promotion and Preventive Medicine as lead agent for the ATSDR program.

Memorandum of Understanding (MOU). DoD completed an initial MOU with the ATSDR in 1989 to prepare public health assessments, toxicological profiles, or other health related activities (including health education) at DoD facilities. That MOU was effective through 1991. From 1991 to 1992, DoD officials initiated renegotiations for a multiyear plan for health related activities. DoD completed a new MOU with ATSDR for the periods 1993 through 1995 and 1995 through 2000.

Cooperative Agreement. The ATSDR has a cooperative agreement with State health agencies to conduct site-specific health activities to determine the public health impact of human exposure to hazardous substances at hazardous waste

Health Risk Communication

sites or releases. The ATSDR issued an amendment, February 10, 1997, to an existing cooperative agreement with the Massachusetts Department of Public Health to address public health priorities at MMR. The agreement states that the Massachusetts Department of Public Health will focus on community concerns and will work to evaluate data and information to address those concerns. The amended agreement has three objectives:

- establish the Community Assistance Panel as the principal committee on the public health assessment at MMR,
- determine whether recent environmental events impact conclusions of the public health assessment, and
- determine communication, health education, and health promotion needs and provide public health support to the community.

Health Risk Communication Strategy

The Air Force did not have a comprehensive health risk communication strategy in place. The strategy should include an ongoing program to explain health risks to the Upper Cape Cod community. It was evident that a comprehensive health risk strategy was not in place because of:

- major community concerns about health risks associated with MMR groundwater contamination,
- lack of a baseline survey of current community health concerns,
- health risk communication program not in place,
- ineffective Community Assistance Panel,
- MMR Environmental Health Program not fully developed, and
- Public Health Action Plan not formally agreed to by the Air Force.

Community Concerns. Some residents and representatives of the Upper Cape Cod community expressed concerns about risks to human health as a result of contamination discovered at MMR. Examples of the concerns include: beliefs that contaminated ponds pose a health risk, beliefs that there will be adverse long-term effects to the water supply, and increased cancer risks on Cape Cod. During our evaluation of MMR, officials of the ATSDR, Massachusetts Department of Public Health, and the Air Force, stated that studies show there is little or no health risk to the public. All the officials indicated that there is no evidence from past studies that link cancer or other adverse health effects to MMR. Numerous studies have not identified a causal relationship with hazardous exposures associated with MMR. A number of the studies were inconclusive in that they failed to show a causal relationship yet the studies

could not rule out such a relationship. However, some members of the community remain concerned that contamination released from MMR pose a hazard to them.

Baseline Survey. Air Force officials had not conducted a baseline survey recently of community health concerns. To develop an effective strategy to explain health risk to the community, current health risk concerns of the community must be first identified. A baseline survey of community health concerns would assure that the program focus is on the health issues of greatest concern to the community. The baseline survey would also provide measurable criteria and progress of any health risk education program. A periodic survey of the community could identify and document changes in community health concern.

Health Risk Communication. MMR did not have an effective health risk communication program. Air Force officials stated that the ATSDR and the Massachusetts Department of Public Health are primarily responsible for health risk communication at MMR. The lack of a viable health risk communication program may result in segments of the community overstating concern for health risks that result from environmental problems at MMR. Air Force health officials defined health risk communication as,

. . . effective message delivery and discussion with the public on possible adverse health outcomes resulting from past, present or future exposures to potential safety or health risks. This process includes discussions of both the severity and likelihood of any adverse health affects due to exposure as it relates to the concentration and future of exposure through completed exposure pathways to the people affected.

Before the Air Force Center for Environmental Excellence (AFCEE) assumed responsibility for cleanup at MMR in May 1996, officials underestimated the need to provide health risk information to the community. The MMR community involvement manager in place at the time of this report states that risk was never a part of the public dialogue, because community concern focused only on the cleanup of contamination. Since AFCEE assumed the responsibility for the MMR IRP, positive initiatives are in place to improve health risk communication. AFCEE initiatives discussed on page 17 provide examples of the improvements to health risk communication.

Community Assistance Panel. The Community Assistance Panel (the Panel), in place as of September 1997 that was established by ATSDR to provide a forum for public health issues, has not been effective. The Panel is the primary forum for the Upper Cape Cod community to voice concerns regarding MMR to various health agencies. As a result of reviewing meeting minutes, and various

Health Risk Communication

interviews of the Panel, indications were that it is not effective. Air Force officials identified several reasons for the ineffectiveness of the Panel including:

- poor facilitation of meetings (meetings were adversarial and nonproductive),
- poor organization (no charter or statement of objectives existed for this panel),
- unbalanced participation by a few vocal members (personal comments directed at specific individuals continue by a few community members), and
- unbalanced representation from the community (only three community members were on the Community Assistance Panel).

Joint Program Office Environmental Health Program. The Air Force is in the process of developing an environmental health program at MMR. The Air Force Health Advisor, assigned to the Joint Program Office effective October 1997, is responsible for coordinating health related issues at the MMR, with appropriate agencies and service components. The Joint Program Office is responsible for developing a strategic plan for integrating environmental programs at MMR, and accomplishing necessary actions to gain public confidence in MMR environmental programs.

Prior to establishing this full-time position, there was no central point of contact and coordination was nonexistent on health related issues at MMR. ATSDR and the Massachusetts Department of Public Health developed the MMR Public Health Action Plan in March 1996. The public health action plan outlines procedures for officials that will make decisions regarding future public health activities related to MMR as agreed to by the Massachusetts Department of Public Health, ATSDR, and the Air Force. The Air Force had not concurred on the public health action plan as of May 1998. Air Force officials state there is no requirement to sign the public health action plan. However, the Air Force intends to sign the plan to communicate with the community and regulators that the health concerns are being addressed. Air Force officials said that while they had not finalized concurrence on the public health action plan, planned actions are being addressed, and are either completed, in process, or ongoing.

The MMR Public Health Action Plan includes an objective to determine health risk communication needs, and development of a comprehensive risk communication package that will integrate relevant environmental and public health issues. The DoD lead agent and MMR officials said that they are working cooperatively with ATSDR to complete this health risk objective.

AFCEE Initiatives Concerning Health Risk Communication

The Air Force continues to move forward to address health concerns at the MMR. Since the AFCEE assumed cleanup responsibilities at the MMR, Air Force officials are positively addressing health related issues.

- The Joint Program Office Environmental Health Program is developing.
- The Joint Program Office health advisor, assigned in October 1997, coordinates health related issues at the MMR. The health advisor was developing plans for a communication workgroup starting October 1997. The Joint Program Office health advisor was working closely with the MMR IRP staff to incorporate risk communication in the MMR Strategic Plan.
- The Joint Program Office health advisor stated she plans to make health risk communication a part of the Community Involvement Program. She stated that there are also plans to fill a community involvement position in the Joint Program Office. Once the position is filled, the health advisor will work closely with the community involvement officer to further address all pertinent issues.
- The Environmental Public Health Center was established in July 1997 through a cooperative agreement with the ATSDR. The mission of the center is to execute all public health activities and assign priorities to the urgent issues related to the MMR. The Environmental Public Health Center is to address health questions and concerns of the Upper Cape Cod Community related to hazardous substances in the environment.

The DoD lead agent for the ATSDR program works closely with the Air Force and ATSDR, in an effort to improve coordination on MMR health related efforts. This coordination includes improving the Community Assistance Panel and ATSDR funding requests by submitting an annual work plan.

Evaluation Summary

The Air Force did not have an effective and comprehensive strategy to provide the Upper Cape Cod community with adequate and timely health risk information related to MMR groundwater contamination. Residents and representatives of the Upper Cape Cod communities expressed concerns about health risks related to contaminants discovered at MMR. Before AFCEE assumed lead for the MMR cleanup project, there was little emphasis on communicating health risk information to the community. This caused the community to draw their own conclusions concerning the impact of MMR groundwater contamination. The Air Force is improving the process to address health concerns related to the MMR. However, the Air Force does not have an effective and comprehensive strategy to communicate health risk to the Upper

Health Risk Communication

Cape Cod community, in coordination with ATSDR and the DoD lead agent. A comprehensive and effective strategy should include the following elements.

- A comprehensive program to explain health risks to the community through development of a risk communication program, that will prevent residents from drawing erroneous conclusions relating to MMR contamination.
- A baseline survey to determine current community health concerns,
- A clear charter and guidelines for the Community Assistance Panel that states objectives, facilitates meetings and provides for participation of the community.
- A fully developed and operational environmental health program to coordinate health related issues.
- Timely concurrence and resolution of the MMR Public Health Action Plan to show that the Air Force agrees with planned health related activities.

Management Comments on the Finding and Evaluation Response

Management Comments. The Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health) nonconcurred with our finding, stating that the Air Force has placed and continues to place sufficient emphasis on risk communication. The Deputy Assistant Secretary indicated that the Air Force implemented the Joint Program Office MMR Environmental Health Program and the reported initiatives concerning health risk communication. In October 1997, the Air Force formally recognized a risk communication program. Participants in the MMR risk communication working group include Federal, State, and local health officials and town officials. He stated that the Air Force has made tremendous strides to improve risk communication.

Also, the Deputy Assistant Secretary indicated that the report should note that a number of the public health studies were inconclusive in that they failed to show a causal relationship of hazardous exposures associated with MMR and the studies could not rule out such a relationship.

Evaluation Response. We recognize the steps taken in the risk communication program and note that the Air Force is moving forward in addressing health concerns and incorporating risk communication in its MMR Strategic Plan. We made a slight modification in this report to reflect their continuing efforts to improve risk communication. We also modified the report to show that, while the public health studies were inconclusive and failed to show a causal relationship of hazardous exposures associated with MMR, the studies could not rule out such a relationship.

Recommendations, Management Comments, and Evaluation Response

B. We recommend that the Deputy Assistant Secretary of the Air Force (Environmental, Safety, and Occupational Health) develop and implement an effective and comprehensive strategy that will provide consistent and timely health risk information to the Upper Cape Cod community. The strategy should include:

- 1. A risk communication program to accurately portray the risk of contaminants related to Massachusetts Military Reservation.**
- 2. A baseline survey to determine community health concerns regarding Massachusetts Military Reservation groundwater contamination.**
- 3. Periodic follow-up surveys to ensure that the health risk communication strategy is effective.**
- 4. Close coordination with the Agency for Toxic Substances and Disease Registry to improve the Community Assistance Panel by establishing a clear charter, rules of engagement, and balanced participation by panel members and community representatives.**

Management Comments. The Deputy Assistant Secretary concurred with our recommendation with comment, indicating a course for satisfying the community's need for environmental and public health information. The Deputy Assistant Secretary stated that a comprehensive risk communication plan is ongoing. The Air Force Center for Environmental Excellence and the Joint Program Office intend to continue a robust and proactive risk communication effort at MMR. The Air Force will continue to evaluate the need for additional management and resource requirements for that effort. Also, the Deputy Assistant Secretary stated that the Massachusetts Department of Public Health conducted a baseline community survey in March 1997. The Air Force requested the results, but the state has not released the results. In addition, the Deputy Assistant Secretary stated that the Air Force has recommended and continues to recommend improvements for the Community Assistance Panel to the Agency for Toxic Substances and Disease Registry.

Evaluation Response. The comments from the Deputy Assistant Secretary were generally responsive. Although the Air Force does not have a formal risk communication strategy, the Air Force provided additional information to show significant progress in health risk communication to the Upper Cape Cod community. The Air Force needs to develop a formal health risk communication strategy that includes periodic follow-up surveys to measure the effectiveness of the strategy.

Part II - Additional Information

Appendix A. Evaluation Process

Scope

Work Performed. We evaluated the Installation Restoration Program (IRP) management and technical decision making process at the Massachusetts Military Reservation (MMR). Also, we evaluated the information dissemination process to the Upper Cape Cod community for health risks associated with groundwater contamination generated by MMR.

Limitations to Evaluation Scope. Management responsibility for the IRP office at MMR transferred from the Air National Guard to the Air Force Center for Environmental Excellence (AFCEE) in May 1996. We concentrated our evaluation on the current status and future plans for the IRP at MMR. Therefore, our evaluation of the management and technical decision making process focused on AFCEE's management and our evaluation of the health risk communication process. We did not evaluate the validity of the technical merits of the remedial actions.

DoD-wide Corporate Level Government Performance and Results Act Goals. In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to the achievement of the following objective and goal:

Objective: Fundamentally reengineer the Department and achieve a 21st Century infrastructure. **Goal:** Reduce cost while maintaining required military capabilities across all DoD mission areas. (DoD-6)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objective and goals.

Environment Functional Area. Objective: Reduce, in a cost-effective manner, risks to human health and the environment attributable to contamination resulting from past DoD activities.

- **Goal:** Identify, evaluate, and, where appropriate, remediate contamination resulting from past DoD activities. (ENV-1.1)

- **Goal:** Ensure immediate action to remove imminent threats to human health and the environment. (ENV-1.2)

- **Goal:** Comply with statutes, regulations, Executive Orders, and other legal requirements governing cleanup of contamination. (ENV-1.3)
- **Goal:** Develop partnerships regarding restoration activities with the U.S. Environmental Protection Agency and appropriate State, Local, and territorial regulatory agencies. (ENV-1.5)
- **Goal:** Promote and support public participation in the Defense Environmental Restoration Program and the Base Realignment and Closure environmental program. (ENV-1.6)
- **Goal:** Support the development and use of cost-effective innovative technologies and process improvements in the restoration process. (ENV-1.7)

General Accounting Office High Risk Area. The General Accounting Office has identified several high risk areas in the Federal Government. This report provides coverage of the management of a Superfund high risk area.

Methodology

Computer-Processed Data and Statistical Sampling. We did not use computer-processed data or statistical sampling procedures for this evaluation.

Universe and Sample. We interviewed DoD environmental project managers, Federal and State regulators, and members of community action groups. Also, we interviewed DoD staff and Federal and State public health advisors involved in the health risk communication process. In addition, we evaluated the following data:

- military, Federal, and State regulations;
- administrative records (minutes) of various community groups;
- IRP decision documents;
- memorandums of understanding and interagency agreements; and
- public health related documents.

Evaluation Period and Standards. We performed this evaluation from May 1997 through June 1998 according to evaluation standards implemented by the

Appendix A. Evaluation Process

Inspector General, DoD. We also evaluated data and documentation on the MMR IRP dating back to 1982. We included tests of management controls considered necessary.

Contacts During the Evaluation. We visited or contacted individuals and organizations within DoD, Federal and State regulatory agencies in Massachusetts, and various community involvement groups. Further details are available on request.

Management Control Program

DoD Directive 5010.38, "Management Control Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Control Program. We reviewed the adequacy of management controls over the MMR Installation Restoration Program technical decision making process and health risk communication process. Specifically, we reviewed the adequacy of management controls over selecting remedial actions and disseminating health risk information to the community. In addition, we reviewed the results of any self-evaluation of those management controls.

Adequacy of Management Controls. We identified material management control weaknesses as defined by DoD Directive 5010.38. AFCEE management controls were not adequate to ensure that decision makers selected remedial actions based on confirmed risks to human health or the environment and that officials disseminated health risk information effectively to the community. All recommendations in this report, if implemented, will improve the process and the dissemination of health risk information will be communicated to the community in an acceptable manner. A copy of the report will be sent to the Air Force officials in charge of management controls for the Headquarters, AFCEE.

Adequacy of Management's Self Evaluation. AFCEE's self evaluation was not adequate. Officials did not identify the technical decision making process for remedial action selection and community relations as assessable units and, therefore, did not identify or report the material management control weaknesses identified by the evaluation.

Summary of Prior Coverage

We found no audits or evaluations performed on the program management practices of the Installation Restoration Program at Massachusetts Military Reservation in the past 5 years.

Appendix B. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
Deputy Under Secretary of Defense (Environmental Security)
Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Assistant Secretary of the Army (Installations, Logistics and Environment)
Chief, National Guard Bureau
Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations and Environment)
Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health)
Deputy Chief of Staff Installations and Logistics
Office of the Civil Engineer
Air Force Center for Environmental Excellence
Auditor General, Department of the Air Force
Commander, Air Force Materiel Command

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency

Non-Defense Federal Organizations

Office of Management and Budget
Technical Information Center, National Security and International Affairs Division,
General Accounting Office
Environmental Protection Agency
Agency for Toxic Substances and Disease Registry, Center for Disease Control

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on Government Reform and Oversight
House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform and Oversight
House Subcommittee on National Security, Internal Affairs, and Criminal Justice,
Committee on Government Reform and Oversight
House Committee on National Security

Part III - Management Comments

Department of the Air Force Comments



Office of the Assistant Secretary

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

03 SEP 1998

MEMORANDUM FOR OAIG-AUD

FROM: SAF/MIQ
1660 Air Force Pentagon (5C866)
Washington DC 20330-1660

SUBJECT: Evaluation Report on the Program Management Practices for the Installation Restoration Program at Massachusetts Military Reservation (Project No. 7CB-5028.01)

We appreciate the opportunity to provide comments on the Draft DoD IG Evaluation Report for Program Management Practices for the Installation Restoration Program at the Massachusetts Military Reservation (MMR). Our management comments are attached for incorporation in the report.

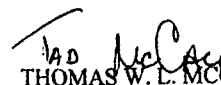
In general, we concur with finding A and the recommended corrective action for both findings, but we nonconcur with finding B. Although it is not reflected in the report, verbal discussions between the DoD IG and AF staff have indicated that "...we are on the right track." Most significantly, over the past 28 months, we have built a program that the community has faith in. The program is based on sound science, recognition of the risk to human health and the environment, and fiscal reality. Because of the progress, I believe it is important for the DoD IG to acknowledge more fully in this report the tremendous accomplishments made by the AF and Army over the past 28 months toward turning around the "Broken Trust" situation at MMR.

We are also concerned that the IG did not fulfill the original intent of the Assistant Secretary of the Air Force (Manpower and Installations) request for an evaluation of the history of the program prior to the Air Force Center for Environmental Excellence (AFCEE) assuming the project. We believe an evaluation of the circumstances leading to many of the deficiencies found by the IG and inherited by AFCEE, would be beneficial in putting the numerous positive aspects of the AFCEE MMR Installation Restoration Program (IRP) management into proper perspective.

The AF will continue to normalize the IRP at MMR. We project the final cleanup systems to be in place by the summer of 2001. This is largely possible because of our efforts

2

over the past 28 months to fold risk-based decision-making back into the process. If you have any questions, please contact Col Postlewaite (693-1016) or Ms Marilyn Null (693-7705).


THOMAS W. L. MCEALL, JR.
Deputy Assistant Secretary
of the Air Force
(Environment, Safety, and
Occupational Health)

Attachment:
AF Management Comments

cc:
HQ AF/LE

Air Force Comments on
DoD IG Draft Evaluation Report
Evaluation of the Program Management Practices for the Installation
Restoration Program at the Massachusetts Military Reservation (MMR)

Executive Summary and Evaluation Results:

It should be noted that it has been over a year since the DoD IG last visited MMR and that the AF has made many improvements since that time to address the concerns and findings included in the report. The Executive Summary should reflect that the original request for evaluation from the Assistant Secretary of the Air Force (Manpower, Reserve Affairs, Installations, and Environment) called for review of program management over four time periods: 1982-1990, 1991-1994, 1994-1996, and 1994 to present. The DoD IG instead focused only on the latter of those periods. The AF believes that many of the deficiencies found by the DoD IG in this report are the result of management practices and decisions made in the former time periods and inherited by AFCEE in 1996. Failure to recognize this does a disservice not only to the AF but even more importantly to the public. A comprehensive review of program management during the former time periods would help us determine more precisely the extent to which we spent funds wisely and adhered to DoD guidance and policies during the early years of the program.

FINDING A: Officials did not base remedial actions on confirmed risks to human health and the environment.

COMMENT: CONCUR.

RECOMMENDATIONS FOR CORRECTIVE ACTION:

1. Direct an independent technical team to assess the MMR IRP

CONCUR: AFCEE has conducted an independent evaluation using AF cleanup professionals from several major commands and agencies. This report will be final in mid-Sep 98 and will be provided to the DoD IG at that time. AFCEE management is currently reviewing the report and taking the necessary action to implement the recommended actions.

ESTIMATED CLOSURE DATE: 30 Sep 98

We also concur that there may be significant value in a nationally based independent technical team evaluating all aspects of the program. The evaluation should include relations with community leaders, community members, and regulators. These relations are at the core of success or failure of a cleanup program. National team composition, member availability, and scope of review will dictate the success of the independent review. We anticipate that such a review could not be completed prior to 30 Sep 99. As all known major cleanup decisions will be

made at MMR by this time, we see only marginal value in affecting the remedies selected at MMR. The information gained however could be extremely valuable in influencing improvements to the Superfund process.

ESTIMATED CLOSURE DATE: 31 Mar 00.

2. Renegotiate the Record of Decision for Interim Action (IROD) with the regulators based on the results of the independent technical team, if appropriate.

CONCUR, with comment: The AF is the regulated party and is unable to unilaterally renegotiate milestones such as the IROD. We do agree that the AFCEE independent technical team may provide information that would assist in revising milestones, if warranted. We recognize the inherent difficulties with an IROD negotiated between the Air National Guard and the US EPA based on a "60 percent" design effort which was terminated in May 1996.

We have used the decision criteria matrix (DCM), based on the nine criteria in the National Contingency Plan (NCP) for remedy selection at Superfund sites, to move the program forward. The DCM established 100 percent plume containment and 100 percent mass removal as "balancing criteria goals." This allowed the development and ultimate selection of cleanup remedies which recognized the risk to human health and the environment. Our success is demonstrated in the Ashumet Valley and LF-1 remedies which allowed monitored natural attenuation (MNA) as the solution for the lower portion of each plume. Using the DCM, AFCEE successfully moved the discussion of the final remedy for the main body of the LF-1 plume to seriously consider MNA. While the final resolution of this remedy will not occur until 21 Sep 98, we believe the community and the regulators are now seriously considering MNA as an active remedy based on risk, and as a favorable effectiveness comparison to a costly mechanical pump and treat system. Finally, AFCEE was able to construct "if-then" decision points for the CS-10 Southern, Southwest and In-plume remedial actions - along with similar decision points for the Ashumet Valley Axial Fence, Ashumet Valley Pond Fence and SD-5S recirculating well remedies. This allows the risk to human health and the environment to be addressed as part of the dialogue. Once the LF-1 remedy is resolved, AFCEE will commence a program to achieve a final ROD on those systems that have a remedial system in place. AFCEE will also pursue a remedy selection ROD for each plume addressed in the IROD, except where a system is in place. We intend to bring this issue to closure by achieving definitive RODs for each plume by 30 Sep 99, subject to the concurrence of US EPA.

ESTIMATED CLOSURE DATE: 30 Sep 99.

3. Schedule the MMR IRP for periodic oversight and technical reviews to measure achievements and effectiveness.

CONCUR: Periodic program oversight is, and will be, accomplished in five different ways:

First, AFCEE will task the Technical Review and Evaluation Team (TRET) to provide an independent review at planned (rather than ad hoc) decision points in the cleanup process. This will become especially important as we address the several "if-then" decision points established in the development of solutions for the CS-10, Ashumet Valley, and SD-5S plumes. This will be proactively managed as part of AFCEE's initiative to accomplish a global (contractor, regulator, public) master implementation schedule.

Second, AFCEE conducted an independent program management review in May 98. As noted above, AFCEE management is currently reviewing the report (ECD late Aug 98) and will implement action on all recommendations by 30 Sep 98.

Third, AFCEE is developing a peer review program to review the remedy selection process accomplished during the feasibility study phase and the "35 percent design" accomplished during the remedy design phase. The implementation plan for this peer review; to include membership, process, and product; will be negotiated with the regulators over the next several months. As stated above, any attempt to implement an outside remedy review without regulator and public involvement will ultimately fail - wasting additional scarce AF and Army resources.

Fourth, AFCEE is developing and implementing improvements to the Strategic Plan to include internal audit procedures to ensure optimization of schedule, budget, quality, and management parameters. AFCEE management will use this to ensure timely and effective program execution.

Finally, AFCEE will work with the Joint Program Office (JPO) to ensure the environmental oversight functions assigned to them are effectively implemented with regard to the IRP.

ESTIMATED CLOSURE DATE: 31 Jan 99.

Revised

FINDING B: The Federal Government has not been effectively communicating with the Upper Cape Cod community.

1. NONCONCUR: Specifically, in light of all the steps taken in the public health action plan that have been accomplished by the AF, the AF has placed and continues to place "sufficient" emphasis on risk communication.

A risk communication program is in place and was formally recognized in Oct 97. The activities of the MMR Risk Communication Working Group have been presented to the SMB. Participation in the work group includes: AF, ATSDR, EPA, MDPH, Massachusetts Department of Environmental Protection, local health officials and town officials. This is reflected in the supporting paragraph on page 15 of the report.

Contrary to the finding, the JPO MMR Environmental Health Program is fully implemented and on-going as reflected in the paragraph on page 16 in the report. In addition,

soon after AFCEE assumed responsibility for the cleanup program at MMR, the AF provided public health officer expertise on a temporary basis for over a year before the permanent assignment by the AF Surgeon General of an AF public health officer to the JPO.

With some of the latest public health studies released over the past couple of months, the newspapers, the activists, and the citizens of Cape Cod are beginning to accept that there is little or no evidence that MMR hazardous wastes have been responsible for what were perceived to be elevated cancer rates on the Upper Cape. Because many of the earlier studies were inconclusive regarding the risks, i.e., the risks could not be disproved, there was little in the way of evidence that the AF, ATSDR, or the State could offer to counteract the perceptions of the community. Now that these latest studies show that there is little likelihood of elevated risks, major steps are being made in overcoming the public's perceptions of risk associated with MMR. While the DoD IG states that the numerous studies have failed to identify a "causal relationship with hazardous exposures associated with MMR," the IG should also note that a number of the studies were inconclusive in that while they failed to show a causal relationship, such a relationship could NOT be ruled out based on the study. This is an important distinction to keep in mind because these nonconclusive studies were largely responsible for keeping the possibility of a human health risk in the forefront of many people's minds.

Revised

While ATSDR has primary responsibility for this program, it is not their responsibility to provide health risk information to the community if they (ATSDR) determine that a need does not exist, for example where little or no risk to human health exists, as is the case at MMR. The DoD lead agent is not in a position to identify the communication needs of a single installation and mandate ATSDR workload. Nor does the AF have the authority to require ATSDR conduct any level of effort.

Regarding the Community Assistance Panel (CAP) being "ineffective," this may be the case for AF and DoD purposes, but not ATSDR purposes. The CAP is a mandate of ATSDR and as such is under the direction of ATSDR. If ATSDR agrees with the effectiveness or purpose of the MMR CAP, then DoD and the AF have no authority to implement changes. The ability of the CAP to function is a matter of opinion and any change to the CAP is beyond the area of responsibility of the AF. Membership to the CAP is managed by ATSDR. Recruitment and addition to the membership is a formal process outlined in the Federal Register. In Oct 97, ATSDR began the process and as a result eight new community members have joined in 1998. Clear guidelines and requirements for completion of the CAP have been requested from ATSDR. All charter-like objectives and guidelines have been published in the Federal Register. No other CAP in the country is facilitated and that remains under the control of ATSDR. All authority and responsibility resides within the Division of Health Studies, ATSDR. It is beyond the scope of the AF to institute changes to the CAP. Recommendations have been and continue to be forwarded to ATSDR from the AF and the DoD Lead Agent.

RECOMMENDATIONS FOR CORRECTIVE ACTION: Recommend that the Deputy Assistant Secretary of the Air Force (Environment, Safety, and Occupational Health) (SAF/MIQ) develop and implement an effective and comprehensive strategy that will provide consistent and timely health risk information to the Upper Cape Cod community.

CONCUR, with comment: Instead of the words 'develop and implement' this recommendation should read 'continue to implement' an effective and comprehensive strategy. SAF/MIQ has set a steady and constant course for the AF to follow in the remediation at MMR. That course constitutes a comprehensive strategy for restoration of public confidence in the military at MMR. The foundation has been a complete commitment to basing our program on satisfying the community's need for environmental and public health information. Coupled with this has been our commitment to meet all environmental and health risks. These efforts have included funding positions for ATSDR and the Massachusetts Department of Public Health at MMR. SAF/MIQ has also assigned a senior, highly regarded AF public health officer to the JPO at MMR. In addition, SAF/MIQ has required that realistic risk considerations be fully integrated within the cleanup executed by AFCEE.

AFCEE has made tremendous strides over the past 28 months to regain public trust and confidence in order to bring realistic risk considerations into the dialogue. Remedy selection is much more focused on risk than it was prior to AFCEE assuming cleanup responsibilities. A comprehensive risk communication plan is ongoing, with AF, ATSDR, regulator, local government, and local health official involvement. AFCEE and the JPO intend to continue a robust and pro-active risk communication effort at MMR, with the AF continuing to evaluate the need for any additional management and resource requirements for that effort. The Massachusetts Department of Public Health (MDPH) conducted a baseline community survey in March 1997. The results were never released but have been requested. The AF signed the Public Health Action Plan in July 1998. It should be noted that all aspects of the plan have been implemented over the past two years, regardless of the date of signature.

When AFCEE took over the program, trust and credibility within the community, effective interface management with the regulators, fiscal reality and recognition of a risk-based program were in serious disrepair. The DoD IG report does not adequately recognize the accomplishments of the AF team in turning this situation around. With the development and implementation of the Decision Criteria Matrix (DCM), we believe we have reintroduced risk as a crucial factor in the discussion of remedies at MMR, as well as other important "risk plus" factors, as identified in the recommendations of the Federal Facilities Environmental Restoration Dialogue Committee (FFERDC). Media coverage and public discussion of the latest public health studies related to cancer on Cape Cod are evidence that this risk communication effort is working.

Evaluation Team Members

The Contract Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, produced this report.

Paul J. Granetto
William C. Gallagher
Michael Perkins
Marcia L. Kilby
Birta M. Johnson
Peter J. Larson
Major Stuart G. Harrison

